

Mark Scheme

Sample Assessment Material

GCSE

GCSE in Mathematics Specification B
Foundation Tier

Unit 1: Statistics and Probability (Calculator)

General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.
- Mark schemes will indicate within the table where, and which strands of QWC, are being assessed. The strands are as follows:

i) ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear

Comprehension and meaning is clear by using correct notation and labelling conventions.

ii) select and use a form and style of writing appropriate to purpose and to complex subject matter

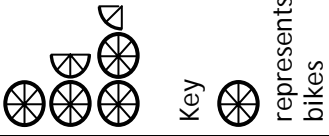
Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.

iii) organise information clearly and coherently, using specialist vocabulary when appropriate.

The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

Guidance on the use of codes within this mark scheme
M1 - method mark
A1 - accuracy mark
B1 - working mark
C1 - communication mark
QWC - quality of written communication
oe - or equivalent
cao - correct answer only
ft - follow through
sc - special case

Unit 1 Foundation Tier: Statistics and Probability

5MB1F					
Question	Working	Answer	Mark	Additional Guidance	
1.	(a)	Gym Tennis Squash Swimming	II 7 III 4 II 5 III 4	7, 4, 5, 4	2
	(b)			5	1
	(c)			Gym	1
Total for Question: 4 marks					
2.	FE	e.g. 0903 - 25 minutes = 0838 0903 0953 0953 + 3 hours = 1253 1300 1355 1355 + 25 minutes = 1420	e.g. 0838 0903 0953 1300 1355 1420	B1 for a correct time 25 minutes (or more) before the train departs e.g. 0838, 0938 ... or earlier B1 for a correct departure time, e.g. 0903, 1003... with the associated correct arrival time 0953, 1053... B1 for a correct departure time (3 hours after arrival) e.g. 1300, 1400... B1 for a correct arrival time corresponding to the departure time, e.g. 1355, 1455... B1 for a correct arrival time at home, e.g. 1420, 1520...	5
Total for Question: 5 marks					
3.				B2 for all 3 days correct (B1 for at least one day correct, i.e. one circle for Thursday or one and a half circles or $1\frac{1}{2}$ x 'Thursday' for Friday or two and a quarter circles or $2\frac{1}{4}$ x 'Thursday' for Saturday) B1 for a correct key	3
Total for Question: 3 marks					

5MB1F				
Question	Working	Answer	Mark	Additional Guidance
4. (a)		Cross at 1	1	B1 for cross at 1 (allow ± 2 mm tolerance)
(b)		Cross at $\frac{1}{4}$	1	B1 for cross at $\frac{1}{4}$ (allow ± 5 mm tolerance)
(c)(i)		$\frac{1}{4}$	2	B1 for $\frac{1}{4}$ oe fraction
(ii)		35		B1 for 35 or 35.0
(d)		1 – s	1	B1 cao
Total for Question: 5 marks				

5MB1F				
Question	Working	Answer	Mark	Additional Guidance
5. QWC (i)		Diagram or chart	4	B1 for a key or suitable labels to identify boys and girls B1 for 5 correct animal labels B1 for a diagram or chart (combined or separate) set up for comparison, e.g. dual bar chart, back-to-back stem and leaf diagrams, pie charts, pictograms, vertical (stick) diagrams, etc C1 fully correct diagram or chart QWC: Fully correct diagram or chart and all labelling is correct and clear
				Total for Question: 4 marks
6.	(a)	(A,1), (A,2), (A,3), (B,1), (B,2), (B,3), (C,1), (C,2), (C,3), (D,1), (D,2), (D,3)	2	B2 for listing all 12 outcomes (B1 for listing 6 outcomes, ignore repeats)
	(b)	$\frac{1}{12}$	1	B1 ft for $\frac{1}{12}$
				Total for Question: 3 marks
7. QWC (i, ii, iii) FE	2(215) + 3(128) = 814 2(211) + 3(134) = 824 2(223) + 3(119) = 803	Easy Plane £803	6	M1 for 2 × Adult + 3 × Child M1 for using correct Adult and Child, i.e. (215, 128) or (211, 134) or (223, 119) A2 for 814, 824 and 803 (A1 for one or two correct or for a correct 2×'Adult' + 3×'Child') B1 for correct units, i.e. £ or pounds C1 for Easy Plane identified QWC: Decision must be stated and total costs must be attributable
				Total for Question: 6 marks
8.	(a) 3 × 6	18	2	M1 for 360 ÷ 60 or 6 seen or 1 gold = 20 A1 cao
	(b)	No and appropriate explanation	1	C1 for 'No' and correct explanation, e.g. the pie charts only show that the proportions are the same OR explains that she could be correct if the total number of medals is the same in each year OR explains that we don't know if she is correct because the total number of medals in 2004 is not known.
				Total for Question: 3 marks

5MB1F				
Question	Working	Answer	Mark	Additional Guidance
9. QWC (i, iii)	12, 20, 7, 28, 28, 35, 37 15, 18, 25, 27, 29, 31, 35, 35, 40	Compares/ 1.medians/ means 2.ranges	6	B2 for median (boys) = 28 and median (girls)= 29 OR mean (boys) = 26.7 or better and mean (girls) = 28.3 or better (B1 for one correct median/mean) B2 for range (boys) = 25 and range (girls) = 25 (B1 for one correct range) OR B2 for fully correct diagram/chart to compare, e.g. back-to-back stem and leaf diagram, dual bar chart, vertical (stick) graphs, etc (B1 for diagram chart with one error in presentation) C1 for median (girls) > median (boys) oe or mean (girls) > mean (boys) oe or for range (boys) = range (girls) oe C1 for comments relating to all working (ie range/mean/median/charts dep on B4) QWC: Decisions should be justified, and calculations attributable SC If no marks scored B1 for a correct comparison
Total for Question: 6 marks				
10.	(a)	Question + response boxes	2	B2 for a suitable question with at least 3 non-overlapping response boxes (must include a time period) (B1 for a suitable question with time period or non-overlapping response boxes)
	(b)	Reason	1	B1 for biased or all the students the same age or students (may) eat more sweets, etc
Total for Question: 3 marks				
11. QWC (ii, iii) FE	2.39 × 12 + 4.5 3.29/100 × 1000	33.18 32.90	5	M1 for '2.39 × 12' + 4.5 or diagram showing 2.39, 4.78, 7.17, ..., 28.68 oe (condone one error) A1 cao M1 for 3.29/100 × 1000 oe A1 cao C1 for Investment A identified QWC: Decision must be stated, with calculations clearly attributable
Total for Question: 5 marks				

5MB1F																								
Question	Working	Answer	Mark	Additional Guidance																				
12.	<p>e.g.</p> <table border="1"> <thead> <tr> <th></th><th>Gu..</th><th>Te.</th><th>Ti.</th><th>Tot.</th></tr> </thead> <tbody> <tr> <td>Male</td><td></td><td>19</td><td></td><td>25</td></tr> <tr> <td>Female</td><td>5</td><td></td><td>4</td><td></td></tr> <tr> <td></td><td></td><td></td><td>7</td><td>50</td></tr> </tbody> </table> <p>Male Female</p> <p>25 25</p>		Gu..	Te.	Ti.	Tot.	Male		19		25	Female	5		4					7	50	35	4	<p>M1 for a two-way table or Venn diagram. Telegraph, Times, Guardian and male, female labelled</p> <p>A1 for 4, 5, 7, 19 and 25</p> <p>M1 for attempt to find 16 (condone one error)</p> <p>A1 cao</p> <p>[NB Two-way table/Venn diagram need not contain all numbers]</p>
	Gu..	Te.	Ti.	Tot.																				
Male		19		25																				
Female	5		4																					
			7	50																				
Total for Question: 4 marks																								
13. (a)(i)		Line of best fit	3	<p>B1 for line drawn between (190, 80), (190, 95) and (210, 105), (210, 120)</p> <p>M1 for $\text{diff. } y / \text{diff. } x$</p> <p>A1 for $0.5 - 2$ or ft their line of best fit</p>																				
(ii)		1.25																						
(b)		20%	2	<p>M1 for a horizontal line at 99 and a vertical line at 200 or 2 seen</p> <p>A1 for 20% or $\frac{2}{10}$ or 0.2 oe</p>																				
Total for Question: 5 marks																								

5MB1F				
Question	Working	Answer	Mark	Additional Guidance
14.	Scone 30g:10g:5g	40	4	M1 for $45 \div (6+2+1)$ A1 for SRF = 30, B = 10, C = 5 M1 for $200 \div 5$ or $500 \div 10$ or $2000 \div 30$ A1 cao
FE	$200 \div 5 = 40$ $500 \div 10 = 50$ $2000 \div 30 = 66.7$			OR M1 for 6×200 or 2×200 or 1×200 or 6×500 or 2×500 or 1×500 or 6×2000 or 2×2000 or 1×2000 A1 for SRF, B, C = 1200, 400, 200 or 1500, 500, 250 or 2000, 666.7, 33.3 M1 for $(1200 + 400 + 200) / 45$ A1 cao.
				Total for Question: 4 marks

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